LONGITUDINAL FORCE RESISTANCE CONNECTORS

Simple non-commercial connection devices used to transmit longitudinal forces along the length of falsework stringers have been tested and approved for use.

Each connector consisted of 2 one-half inch thick steel plates approximately 6" long by 2 1/4" wide bolted at one long end of each plate. Connectors were installed on the top flanges of the WF beams with lower plates butting beam webs, bolts butting beam ends, with top plates parallel. with the interconnecting banding atop the top flanges. The top plate had a rectangular recess opposite the bolt end large enough to accommodate the banding. The recess had a rounded edge to prevent damage to the banding. The banding waslooped through the plate recesses of the connectors with the tail ends conventionally connected with a banding clip. Figure No. 1 shows the banding connector and method of installation on the beams.

TEST RESULTS

Performance testing of steel plate connectors placed at ends of wide flange steel beams as shown in Figure 1 indicated that the connectors were stronger than single 1 l/4" wide by 0.035" thick banding when the ends of the wide flange beams, placed parallel and touching, were loaded longitudinally.

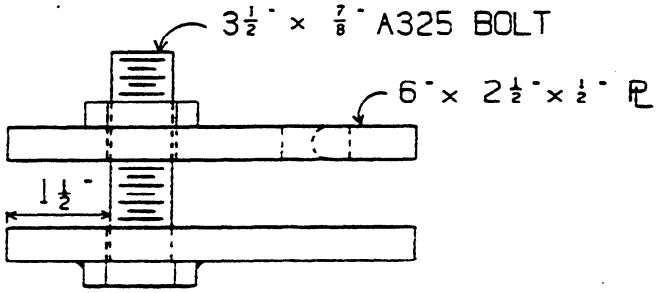
PERMITTED USE

Based on the above test results these connector devices will be allowed a working force value of 5,000 pounds per connection when used with a single 1 l/4 " wide X 0.035" thick band. This working force value provides for a 2.5 factor of safety for the beam connector components and a safety factor, based on manufacturers strength values, of 2.18 for the single loop banding.

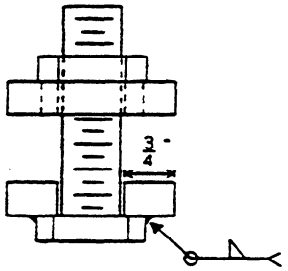
A safety factor of 2.18 will be acceptable for banding because manufacturer's strength values are adjusted to the lower end of the average value range.

Resisting load values for this type of connector may be 5,000 pounds per connection if the single shear value of the bolt exceeds 5,000 pounds and the minimum banding capacity equals 5,450 pounds (single loop value = 5450(2)/2.18=5,000 pounds). Banding capacity is to be the manufacturer's average strength recommendation adjusted for a minimum 2.18 factor of safety.

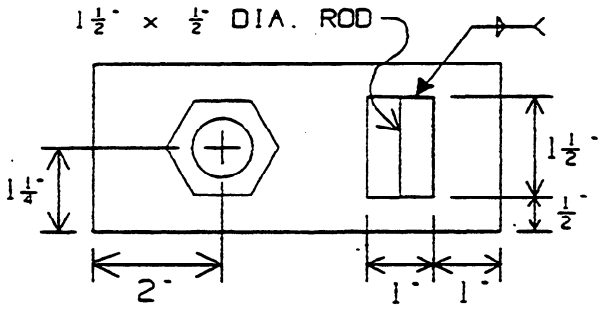
The 5,000 pound working force value may be used when the angle between center lines of banding and beam webs does not exceed 30°. For larger angles decrease the working force value by 1700 pounds for each l0° increment in excess of 30°.



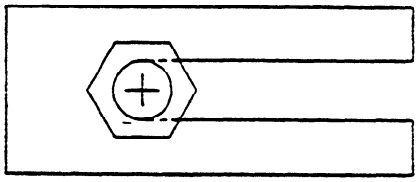
SIDE



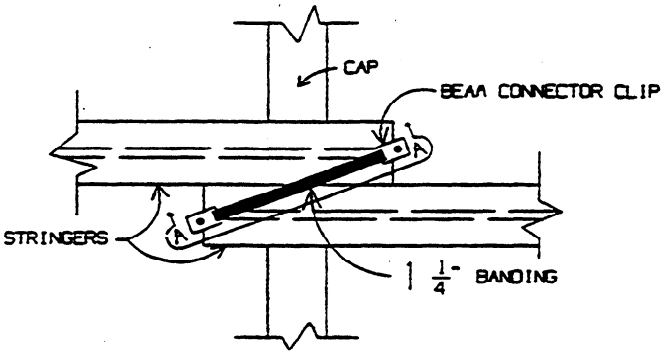
END VIEW



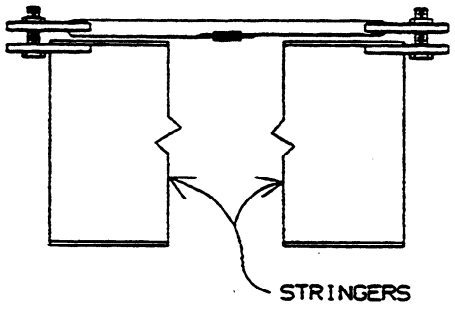
TOP VIEW



BOTTOM VIEW



PLAN VIEW



DETAIL A-A

FIGURE I